# West Virginia Supplemental Set-Aside Work Plan

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# Introduction

The West Virginia (WV) Department of Health and Human Resources (DHHR), Bureau for Public Health (BPH), Office of Environmental Health Services (OEHS), Environmental Engineering Division (EED) administers the Drinking Water State Revolving Fund (DWSRF) authorized under the federal Safe Drinking Water Act (SDWA). OEHS has identified set-aside funds not disbursed as originally intended in prior grants. These available funds are the result of staff vacancies and budget under runs. OEHS has estimated its expenses through the end of FY 2007 and available funds for additional SDWA activities.

These work plan activities will provide services to water systems improving their SDWA compliance and technical, managerial, and financial capacity. These activities will improve water systems' viability and increase public health protection.

Using contractors will significantly increase the completion of work activities compared to using only in-house staff. OEHS staff will oversee all contractor activities and adjust their direction as necessary.

Grants will provide additional source water protection and technical pre-construction assistance. Preliminary engineering, planning, and project design grants will enable water systems to move quickly to construction. Source Water Protection and security grants will provide funds to community public water supply systems, helping them establish and implement source water protection programs.

Table 1 indicates the previous capitalization grant set-asides funds specified for these supplemental activities.

Table 1: Specified Funds

| Work Plan Activity | 4% Set-Aside | 10% Set-Aside | 15% Set-Aside | Total |
|---|---|---|---|---|
| SRF Project Design or Preliminary Design Grants | $ 502,797 | $ 150,985 | $ 1,702,765 | $ 2,356,547 |
| Capacity Development and Source Water Assistance Program | | $ 1,900,000 | $ 400,000 | $ 2,300,000 |
| GIS Mapping (GPS) Grants | | $ 129,075 | $ 270,334 | $ 399,409 |
| Area Wide Optimization Program Performance Based Training | | $ 325,000 | $ 325,000 | $ 650,000 |
| Security Enhancements | | $ 200,000 | | $ 200,000 |
| Source Water Protection Grants | | $ 500,000 | $ 200,000 | $ 700,000 |
| WV Utility Management Institute | | | $ 200,000 | $ 200,000 |
| Distribution and Chief Operator Training | | $ 100,000 | | $ 100,000 |
| **Total** | **$ 502,797** | **$ 3,305,060** | **$ 3,098,099** | **$ 6,905,956** |

# Preliminary Evaluation, Planning, and Project Design Grants

**Goal:** **Provide grant funds to small water systems to determine their needs and expedite projects to the construction phase.**

**Objective 1:** **Offer technical assistance grants to private and public community water systems for system assessment.**

**Methods:**

Use grants to:

- Perform source water quantity and quality studies.
- Drill exploratory wells determining source feasibility.
- Test system water loss.
- Perform other studies as needed.
- Identify compliance issues via feasibility study.

**Outputs:**

- All grants used effectively.
- Completed evaluation reports used for subsequent projects.

**Objective 2:** **Offer planning and design grants to private and public community water systems.**

**Methods:**

Use grants to:

- Develop preliminary engineering reports for funding applications.
- Prepare design plans and specifications.
- Conduct income surveys.

**Outputs:**

- Preliminary engineering reports completed for funding applications.
- Design plans and specifications completed, expediting project funding and construction.
- Completed income surveys demonstrate disadvantaged status.

**Goal Outcomes:**

- Projects funded and constructed more rapidly.
- Water systems returned to compliance.
- Water systems avoid future non-compliance.
- Water systems' source and infrastructure needs better understood.

**Resources required:**

$ 502,797 from the 4% set-aside for grants.
$ 150,985 from the 10% set-aside for grants.
$1,702,765 from the 15% set-aside for grants.
$2,356,547 is the total amount for grants from all three set-asides.

# Source Water Protection Grants

**Goal 1:** **Implement source water protection activities associated with the Source Water Assessment and Protection (SWAP) program.**

**Objective 1:** **Provide grants to community public water supply (PWS) groundwater systems establishing and implementing wellhead protection programs.**

**Methods:**

- Establish and develop wellhead protection activities protecting groundwater sources.
- Establish formal sub-recipient agreement with grantee, including scope of work and standards.
- Refine the wellhead protection delineations using site-specific information.
- Expand the inventory of existing and potential point and non-point contamination sources
- Initiate wellhead protection management or planning.
- Enhance wellhead protection program at the local level.

**Outputs:**

- Wellhead protection activities implemented.
- Wellhead protection plans improved.

**Objective 2:** **Provide grants to surface water community PWS systems, assisting them to establish and implement source water protection programs.**

**Methods:**

- Establish and develop surface source water protection.
- Establish formal sub-recipient agreement with grantee, including scope of work and standards.
- Establish inter-agency agreement promoting and implementing watershed source protection benefiting community systems.
- Refine the watershed protection using site-specific information.
- Expand the inventory of existing and potential point and non-point contamination sources.
- Initiate source water protection management or planning.
- Enhance source water protection program at the local level.

**Outputs:**

- Source water protection activities implemented.
- Source water protection plans improved.

**Goal 1 Outcome:**

- Communities' source water protection efforts and measures improved.

**Goal 2:** **Assess and characterize the quality of water in flooded, abandoned underground coal mines, primarily in southern WV.**

**Objective:** **Determine water flow paths and recharge rates into abandoned coal mines from overlying strata. Develop a flow model, accounting for fractured bedrock and mine voids; applicable to other flooded, abandoned, underground mines.**

**Methods:**

- Develop a multi-year joint funding agreement with the USGS.
- Collaborate with other cooperating agencies in funding USGS.
- Select one or more suitable mines, preferably a PWS water source.
- Install monitoring wells.
- Conduct borehole geophysics identifying strata physical properties.
- Collect and analyze ground water samples.
- Conduct a ground water recharge investigation including flow through a flooded abandoned coal mine.
- Characterize overlying strata hydraulic properties.
- Create fractured bedrock aquifer conceptual groundwater flow model for flooded, abandoned, underground coal mines.

**Outputs:**

- Interim progress summaries issued.
- Raw data including sample analysis, physical lithologic characteristics, and borehole geophysical logs.

**Goal 2 Outcomes:**

- The fractured bedrock aquifer conceptual ground water flow model created.
- A water accumulation and movement model developed for flooded abandoned coal mines.
- Aquifer properties and characteristics database significantly revised to include data

representing the southern West Virginia mining region.

- A comprehensive report applicable to comparable geologic settings is available.
- Knowledge obtained increased source water protection activities for PWSs utilizing abandoned mine water.

**Resources required:**

$500,000 from the 10% set-aside for surface water source water protection grants.
$200,000 from the 15% set-aside for ground water source water protection grants.
$700,000 is the total amount for grants from both set-asides.

# Geographic Information System Mapping

**Goal 1:** **Create a pilot Global Position System (GPS)/field measurement water system infrastructure inventory within the southern WV Region I Planning & Development Council (Region I) areas.**

**Objective:** **Acquire asset inventory for municipalities and public service districts (PSDs) within Region I.**

**Methods:**

- Initiate a GPS asset inventory pilot program for a minimum of six systems. System size and complexity will vary.
- Estimate project cost for completing remaining Region I systems.
- Use GPS equipment/field observations to inventory water system infrastructure locations (e.g., hydrants, pump stations, and valves).
- Input feature attributes (e.g., manufacturer, installation dates, and maintenance history) into GPS receiver/field notes.
- Maintain secure data copy.
- Issue a project summary report.

**Outputs:**

- Municipalities/PSDs (as well as State officials, upon request) are provided current, geo-referenced digital and hardcopy asset inventory.
- Project summary report completed.

**Goal 1 Outcomes:**

- Municipalities/PSDs have accurate, geo-referenced inventory used for asset inventory and maintenance.
- State and Federal agencies (if applicable) have inventory for use analyzing system assets and infrastructure efficiency.

**Goal 2:** **Build a pilot Region I Geographic Information System (GIS) mapping for participating public water systems.**

**Objective:** **Establish a GIS database for system analysis, maintenance planning, and repair facilitation.**

**Methods:**

- Incorporate GPS/field measurement data into computerized mapping (GIS) program.

- Incorporate previously established Computer Aided Drafting and Design (CADD) mapping into GIS program.
- Digitize system features not feasibly mapped by GPS inventory (e.g., lines).
- Connect distribution and branch lines to hydrants, valves, and pump stations, etc. using GIS.
- Assign system attributes (e.g., line diameter, line material, flow direction, flow rates, installation dates, photographs, and schematics) to features using GIS program's inherent database compilation capabilities.

**Outputs:**

- Detailed geo-referenced system mapping incorporating high-resolution color aerial photography is completed and available in digital and hardcopy formats.
- Detailed database files (integrated into GIS data) are suitable for analysis by other GIS users.
- Detailed digital data uploaded into GIS-capable GPS receivers.

**Goal 2 Outcome:**

- Personnel provided information locating assets for emergency repairs and routine maintenance.

**Goal 3: Enable water system GIS data analysis.**

**Objective: Provide assistance and location materials increasing system viability.**

**Methods:**

- Provide water system administrator with GPS and GIS datasets.
- Provide water system administrator with GIS data "viewer".
- Provide GIS data to other interested parties.

**Output:**

- System administrators provided with GIS viewer and GIS/GPS data.
- Data viewed and analyzed, but not altered.

**Goal 3 Outcomes:**

- System administrators provided quality mapping suitable for system planning and other tasks.
- Governmental agencies and others have access to water system mapping information.
- Water systems have a more accurate asset inventory.
- Water system GIS data protected.

**Resources required:**

$129,075 from the 10% set-aside for GIS mapping grants.
$270,334 from the 15% set-aside for GIS mapping grants.
$399,409 is the total amount from both set-asides.

# Capacity Development and Source Water Assistance Program

**Goal 1:** **Help water systems achieve technical, managerial, and financial (TMF) capacity.**

**Objective:** **Identify public water systems (PWS) lacking TMF capacity and coordinate assistance.**

**Methods:**

The contractor will:

- Complete an on-site survey of all Community Water Systems using the Capacity Development Program (CDP) questionnaire.
- Submit survey results to CDP staff.
- Identify PWSs needing TMF assistance and willing to work with the contractor. Examples include management policies, procedures, plans, budgets, financial planning, and security plans.

**Outputs:**

- CDP surveys completed.
- A list of PWSs needing TMF assistance developed.
- Assistance provided to receptive PWSs.

**Goal 1 Outcomes:**

- BPH has comprehensive knowledge of PWSs' TMF capacity.
- Water systems have necessary written plans and procedures.
- Improved TMF capacity results in viable systems.
- Viable systems improved public health protection.

**Goal 2:** **Implement wellhead and source water protection activities associated with the WV Source Water Assessment and Protection (SWAP) program.**

The 10% and 15% percent set aside contains money for wellhead and source water protection.

**Objective 1:** **Contractor provides management and technical assistance to communities, helping develop, update and implement source water protection plans.**

**Methods:**

- Assign project areas or individual PWS systems to contractor(s).
- Contract work will focus on community water systems (CWS), especially small CWSs.
- Contractor will:
    - Facilitate Local Advisory Committee meetings.
    - Provide educational materials.
    - Collect PWS letters of intent to participate in source water protection.
    - Revise wellhead and/or SWAP delineation as needed.
    - Revise the potential contaminant inventory as needed.
    - Determine appropriate source water protection measures on a local basis.
    - Develop system specific management and contingency plans using Local Advisory Committee assistance.
    - Submit plans to BPH for approval.
    - Identify projects that PWSs can accomplish.
    - Conduct outreach/educational activities (e.g., outreach/educational workshops, magazine/newspaper articles).
    - Develop system specific source water protection brochure.
    - Provide PWS system assistance.

**Outputs:**

- Wellhead protection activities implemented.
- Local efforts created enhanced protection plans.
- Standardized plans were accessible to interested parties.
- SWAP and WHP plans approved.
- Initial and updated source water reports issued.
- Local source water protection plans and educational brochures developed.
- Protection activities implemented.
- System specific contingency and management plans prepared.

**Objective 2:** **Contractor will develop and print a local PWS management guidance document.**

**Methods:**

- Identify specific management activities to mitigate potential contaminant sources.
- Include information such as implementation processes, costs, timeline, and examples.
- Submit documents for BPH approval.

**Output:**

- A finalized guidance document is available for local use.

**Objective 3:** **Contractor will develop and print a local PWS contingency plan guidance document.**

**Methods:**

- Identify specific contingency planning activities.
- Provide water systems with an action plan in the event their drinking water supply is threatened or becomes contaminated.
- Include emergency response information, alternative water supply sources, and other elements specified by the BPH.
- Submit documents for BPH approval.

**Outputs:**

- A finalized guidance document is available for local use.

**Goal 2 Outcomes:**

- Local educational efforts increased source water protection.
- Local communities increased involvement in source water protection efforts and measures.
- Community source water protection efforts and measures improved.
- Guidance documents support additional local efforts.

**Resources required:**

$1,900,000 from the 10% set-aside for contractor services.
$ 400,000 from the 15% set-aside for contractor services.
$2,300,000 is the total amount for grants from both set-asides.

# Area Wide Optimization Program
# Performance Based Training

**Goal:** **Initiate and implement Performance Based Training (PBT) within the EPA's Region III Area Wide Optimization Program (AWOP) guidelines.**

**Objective:** **Train public water system operators to optimize their treatment plant and/or distribution system performance.**

**Methods:**

The contractor will:

- Enlist water system management/owners and water system operators in the AWOP/PBT program.
- Conduct water system operator training.
- Analyze water plant treatment processes and/or distribution operations.

**Outputs:**

- Water system operators mentored in PBT and AWOP principles.
- Assistance provided to water system operators, increasing the PBT program graduation rate.
- Water treatment plant performance and/or distribution operations optimized.

**Outcomes:**

- PBT-trained water system operators will optimize water treatment plant and/or distribution operations.
- Optimized water treatment plant performance reduced particle numbers, associated potential contaminants, and disinfection by-product formation.
- Optimized distribution operations reduced disinfection by-product formation.
- Public health protected with improved operator and water system performance.

**Resources required:**

$325,000 from the 10% set-aside for contractor services.
$325,000 from the 15% set-aside for contractor services.
$650,000 is the total amount for grants from both set-asides.

# Source Water Security Enhancements Grants

**Goal:** **Improve PWSs source water security using grant funding.**

**Objective:** **Offer grants for enhanced PWS source water security protection.**

**Methods:**

Use grants to:

- Install security features:
  - Fencing.
  - Cameras.
  - Lights.
  - Alarm systems.
- Install raw water contaminant detection equipment.

**Outputs:**

- Water systems facilities will have increased source water security.
- All funds used effectively.

**Outcomes:**

- Public health protected with improved source water security.

**Resources required:**

$200,000 from the 10% set-aside for source water security grants.

# WV Utility Management Institute

**Goal:** **Develop a WV Utility Management Institute (UMI) providing professional training, leading to a Utility Manager Certification.**

**Objective:** **Create a training curriculum leading to a Utility Manager Certification awarded to utility managers successfully completing all UMI courses.**

**Methods:**

The contractor will:

- Create the following courses:
  - Utility Management.
  - Utility Organization, Regulation and Law.
  - Modern Technology and Utility Management.
  - Human Resource Management for Utilities.
  - Utility Finance and Administration.
  - Public Relations in Utility Management.
- Develop materials and hold courses in WV.
- Provide and/or arrange for course instructors.
- Schedule and conduct first year courses.
- Issue course completion certificates.
- Maintain course rosters and records.
- Provide a post-course evaluation and make appropriate course modifications.

**Outputs:**

- UMI curricula developed.
- One round of curriculum classes taught.
- Course records and certificates maintained.

**Goal Outcomes:**

- A WV UMI program is developed.
- Participating water system staff developed management expertise.

- Better water system management improved water system TMF capacity and long-term viability.
- Public health protected through improved water system management.

**Resources required:**
$200,000 from the 15% set-aside for contractor services.

## Water Distribution and Chief Operator Training

**Goal:** **Establish and conduct water distribution and chief operator training.**

**Objective:** **Create water distribution and chief operator training curriculum and testing.**

**Methods:**

The contractor will:

- Create the following courses:
  - Water distribution operator training.
  - Chief operator training.
- Develop materials and hold courses in WV.
- Provide and/or arrange for course instructors.
- Schedule and conduct first year courses.
- Develop and produce written examinations.
- Issue certificates for course completion.
- Maintain course rosters and records.
- Provide a post-course evaluation and make appropriate course modifications.

**Outputs:**
- Curricula and testing developed.
- One round of classes taught.
- Course records and certificates maintained.

**Goal Outcomes:**
- Water distribution and chief operator training program developed.
- Distribution and chief operator classes taught.
- Distribution and chief operators tested and certified (or licensed).
- Public health protected through improved water system operation.

**Resources required:**

$100,000 from the 10% set-aside for contractor services.